

Gate Leakage vs. T_{inv} as a Function of Base Oxide Thickness and RPN Time

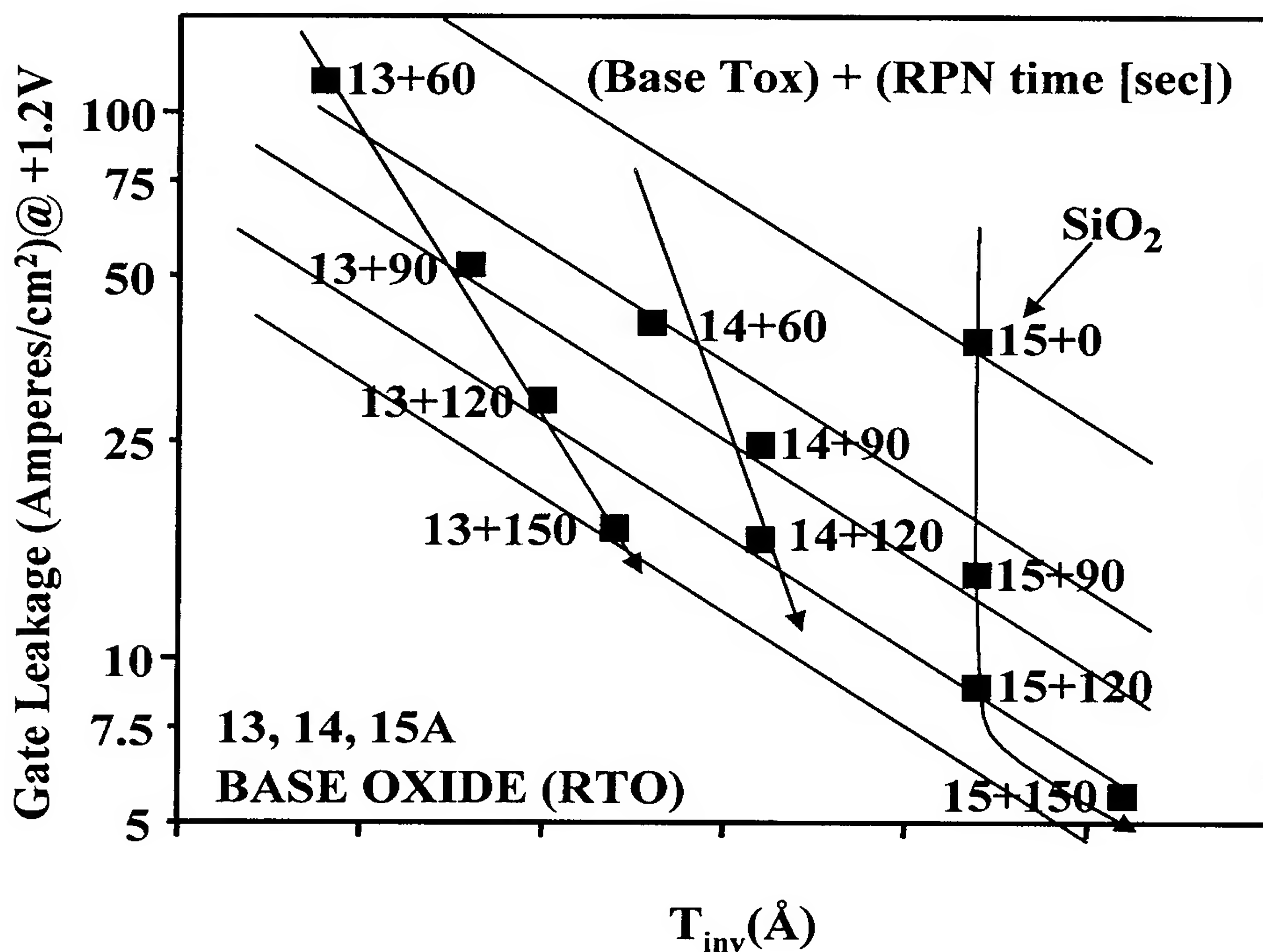
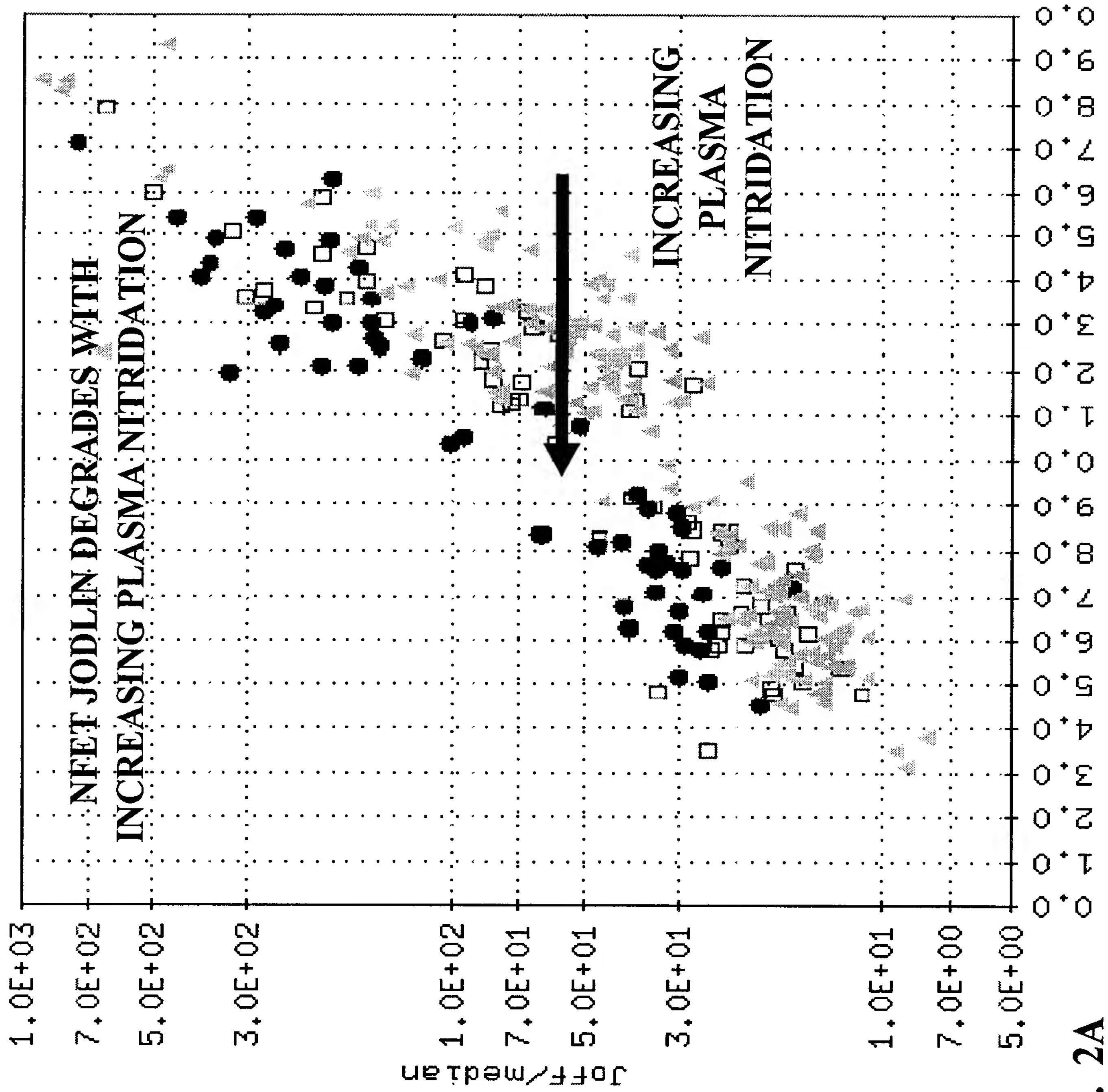


FIG. 1 PRIOR ART



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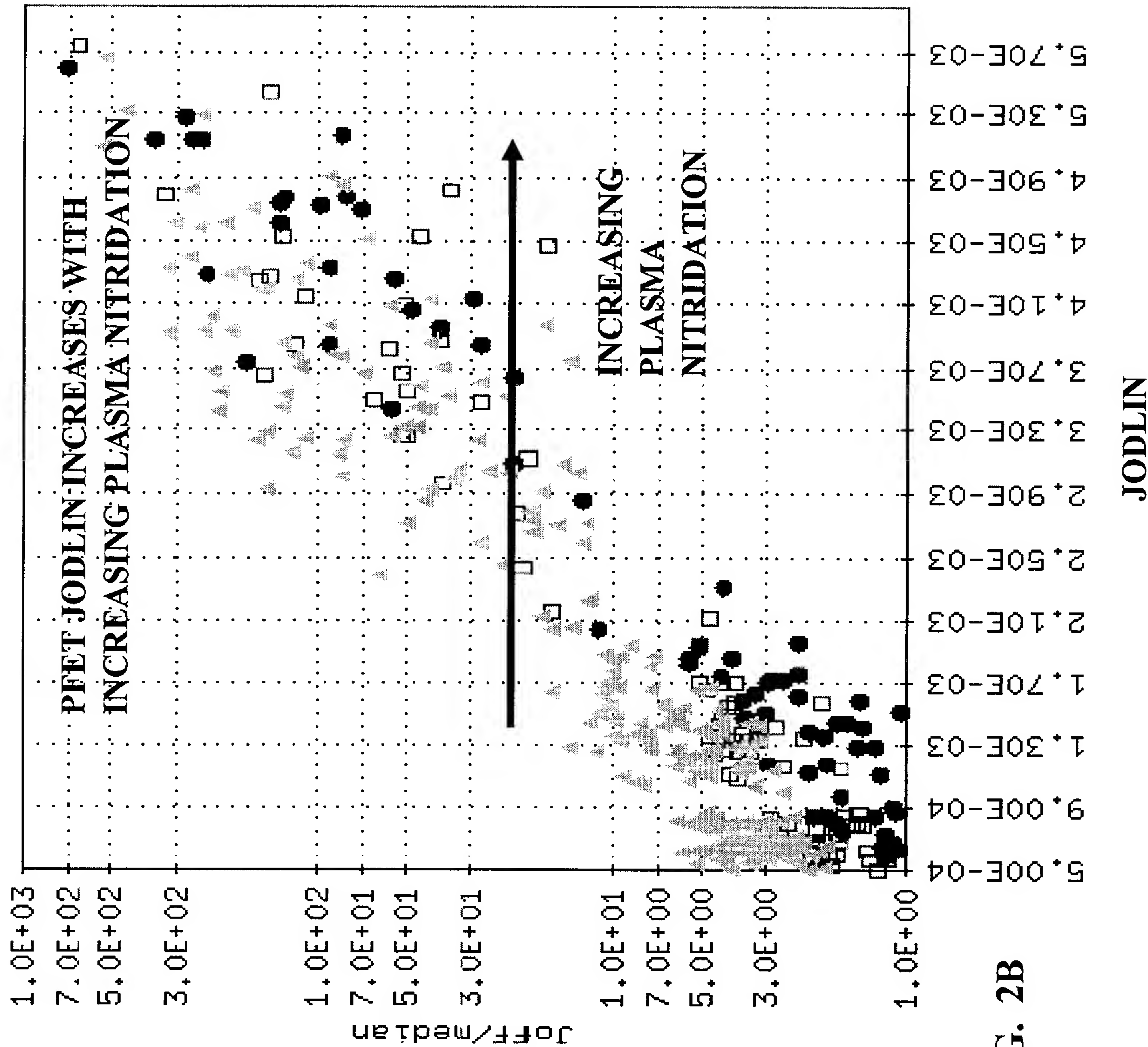
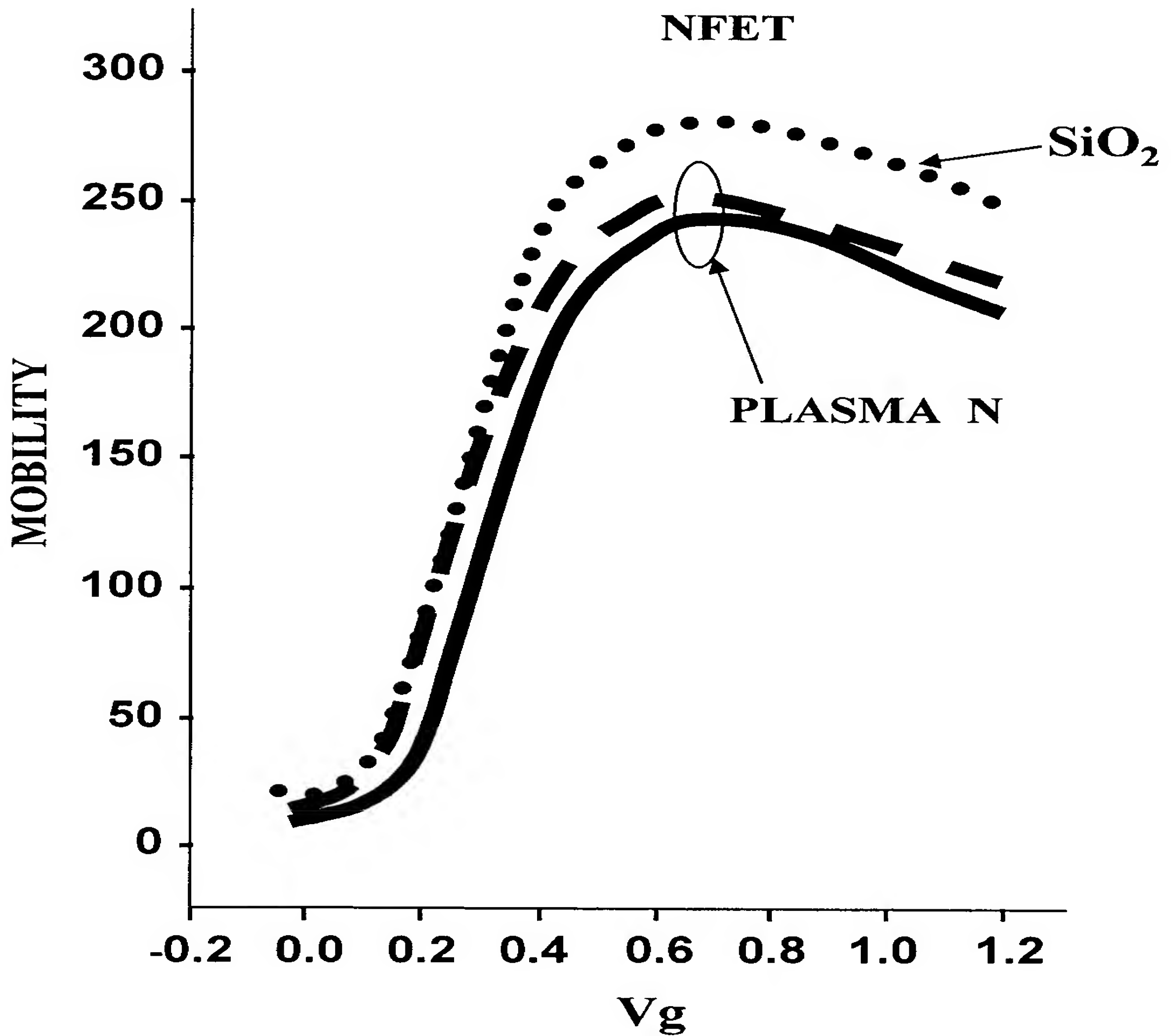


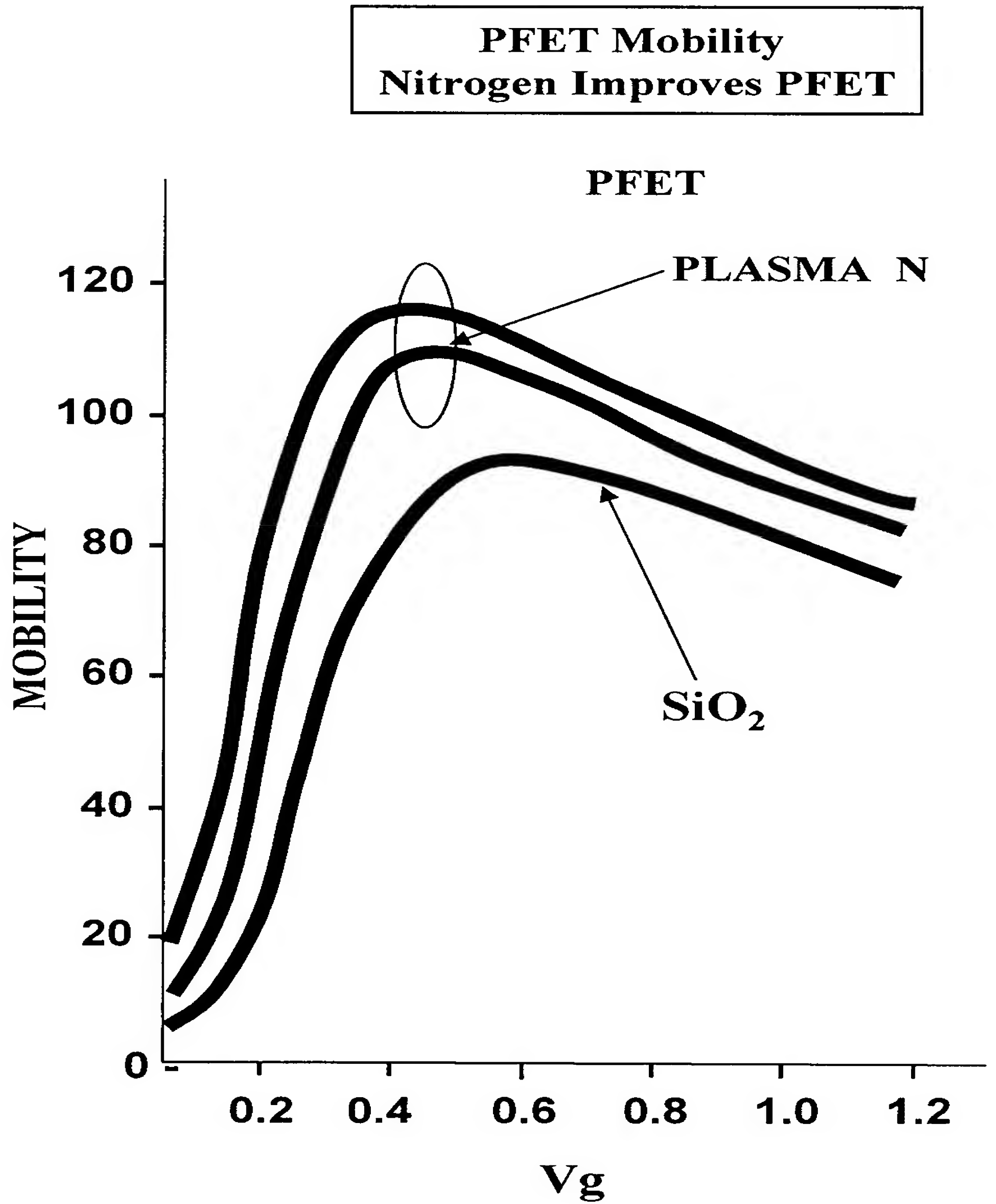
FIG. 2B

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**NFET Mobility
Nitrogen Degrades NFET**

**FIG. 3A**

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**FIG. 3B**

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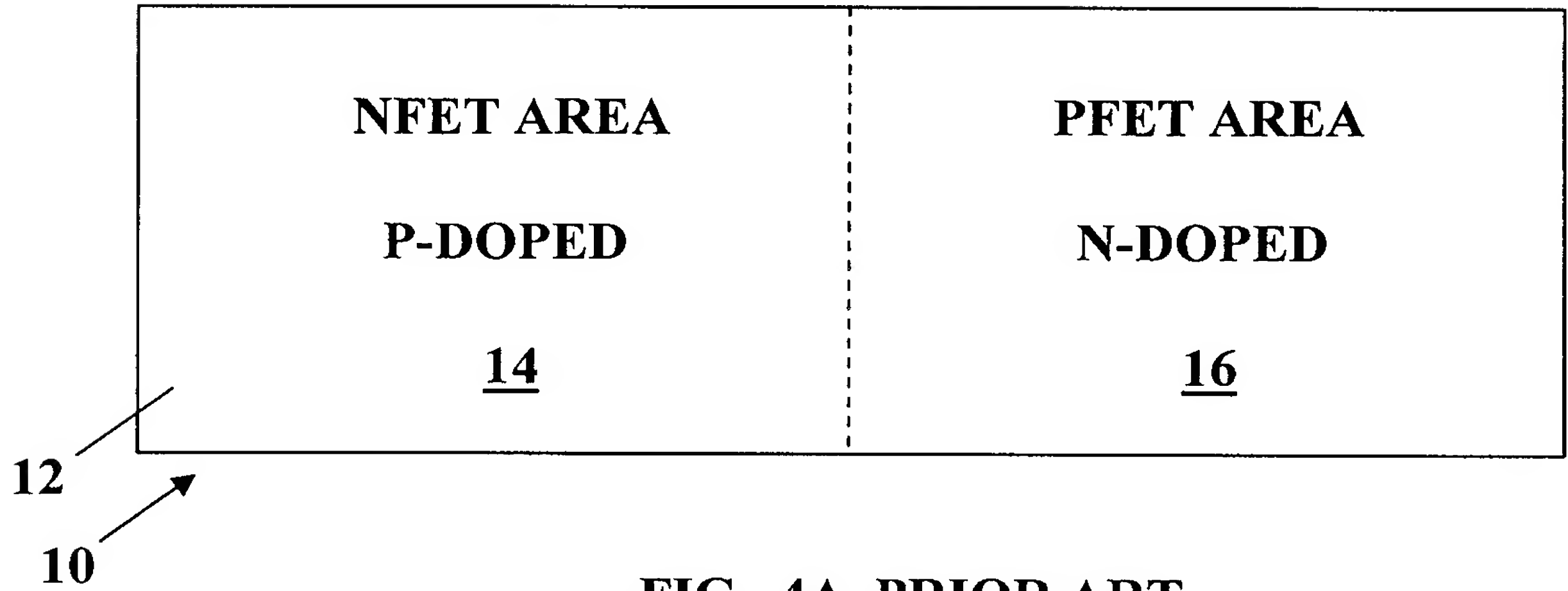


FIG. 4A PRIOR ART

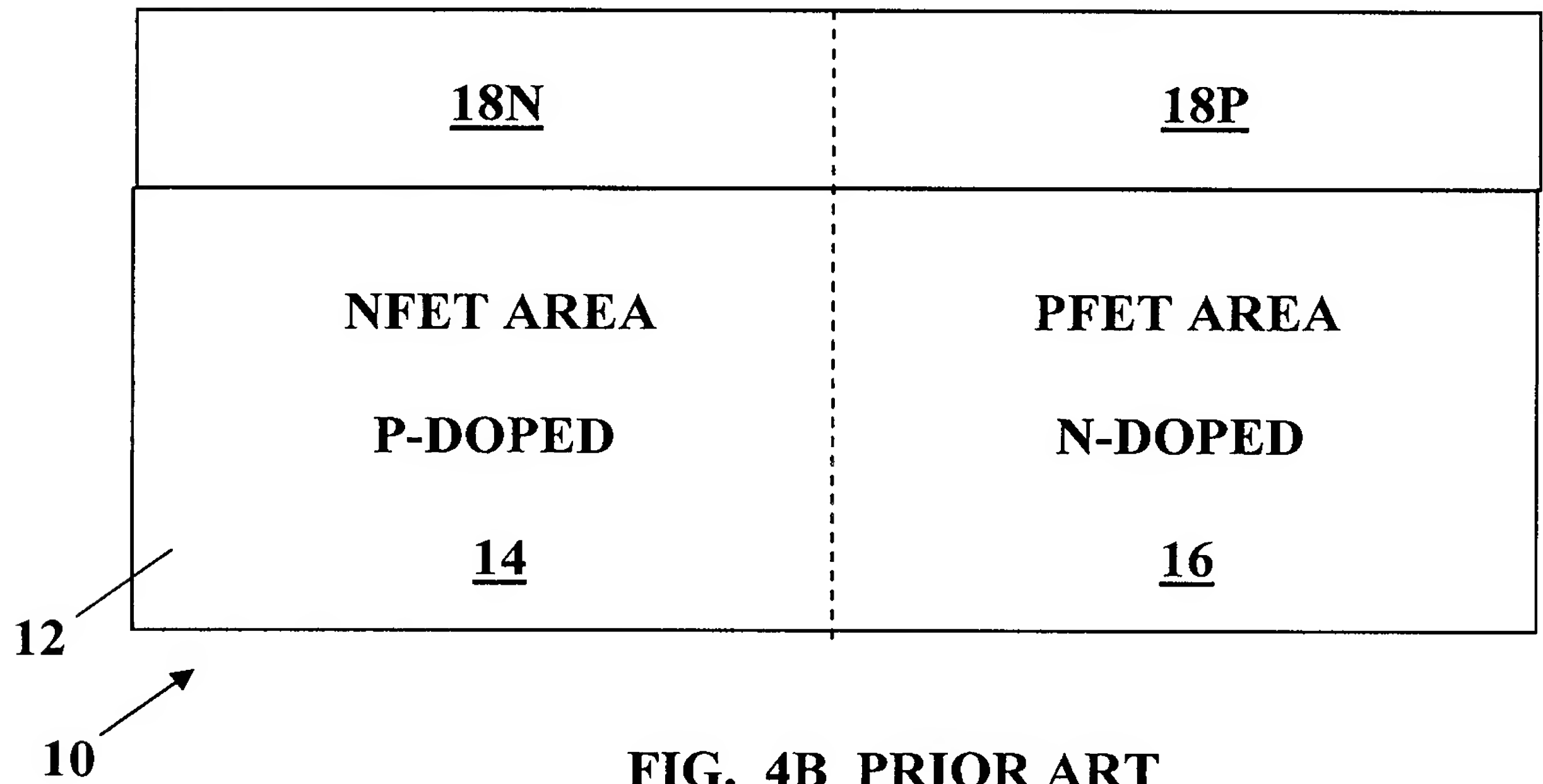
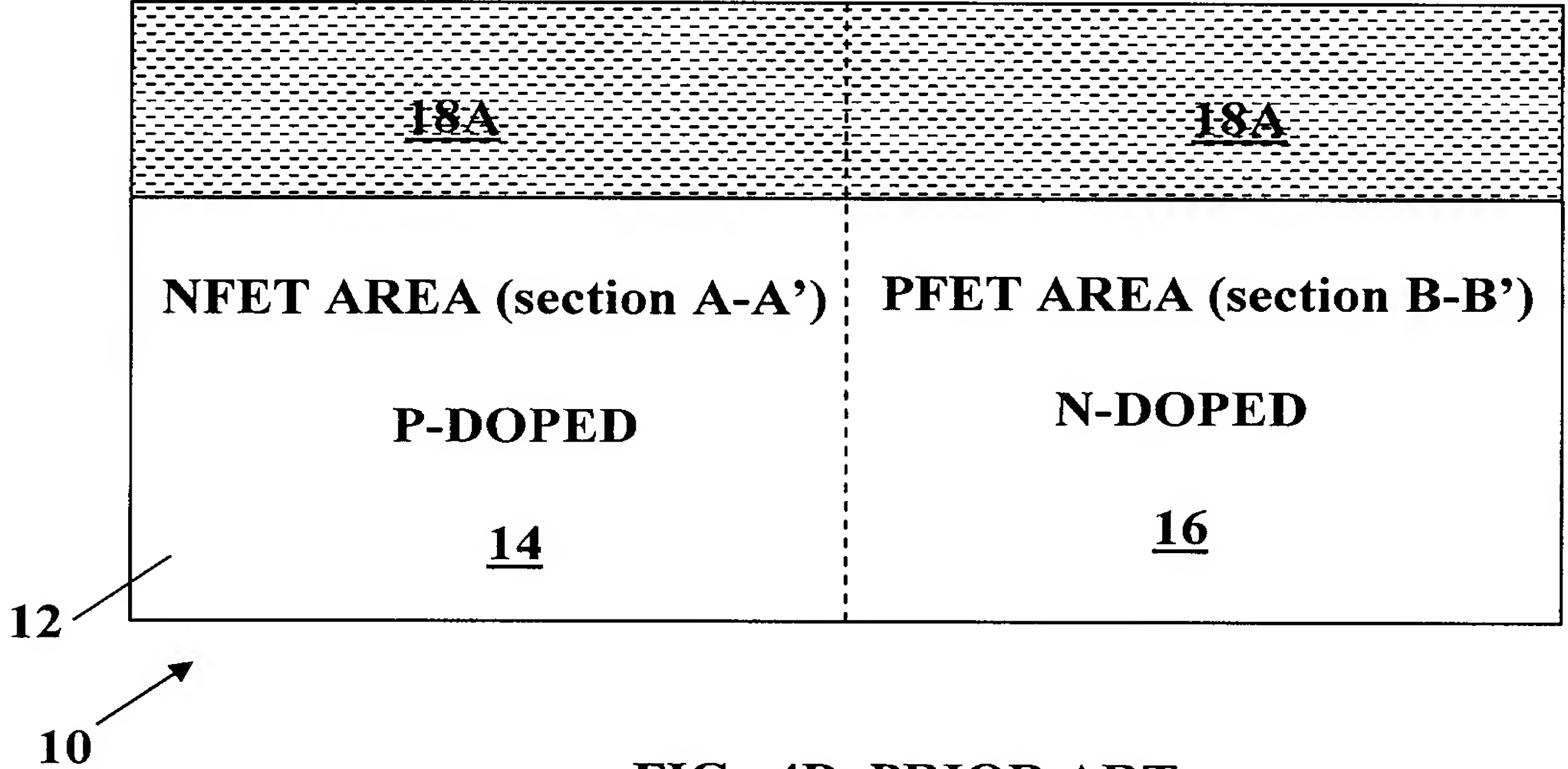
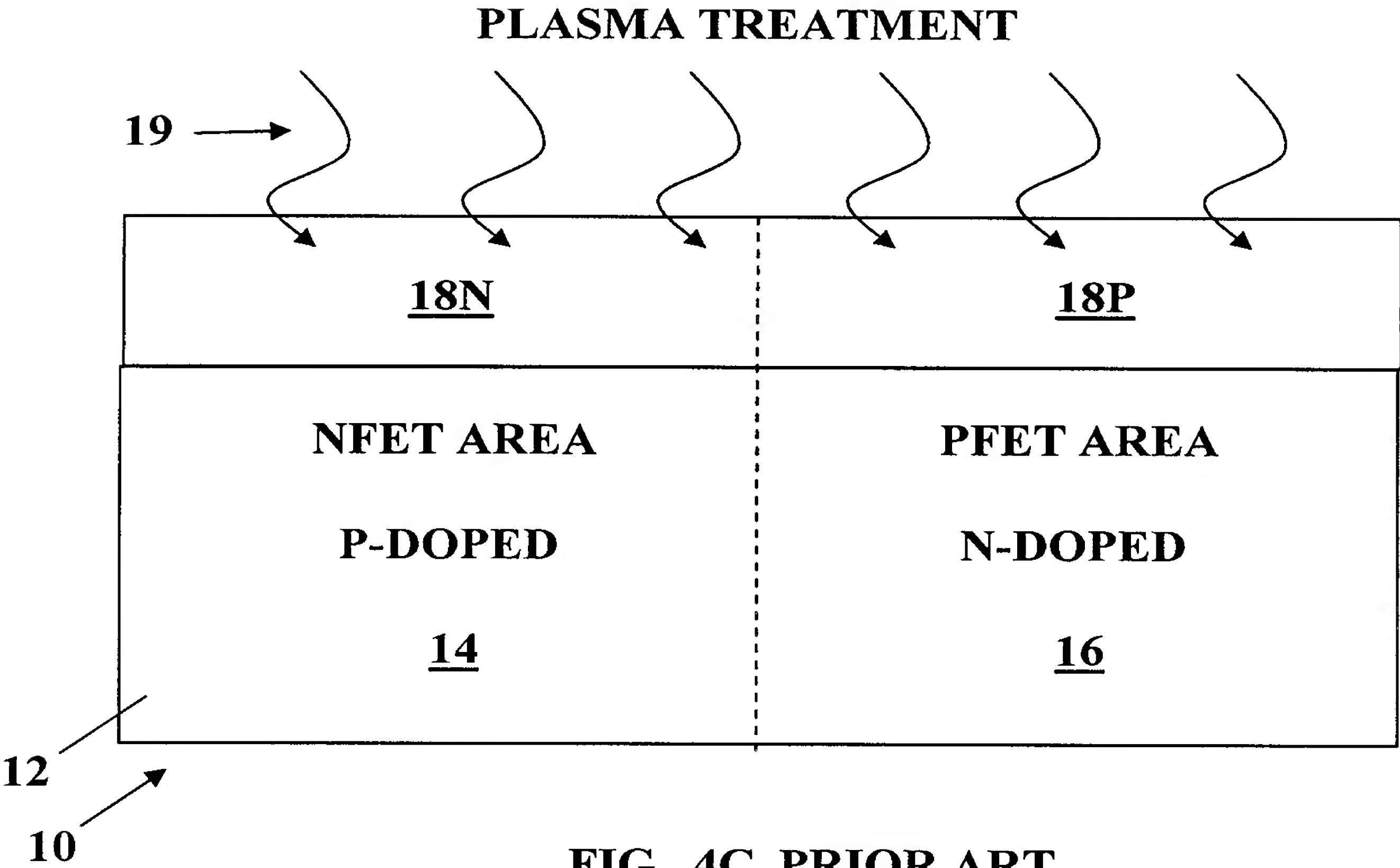
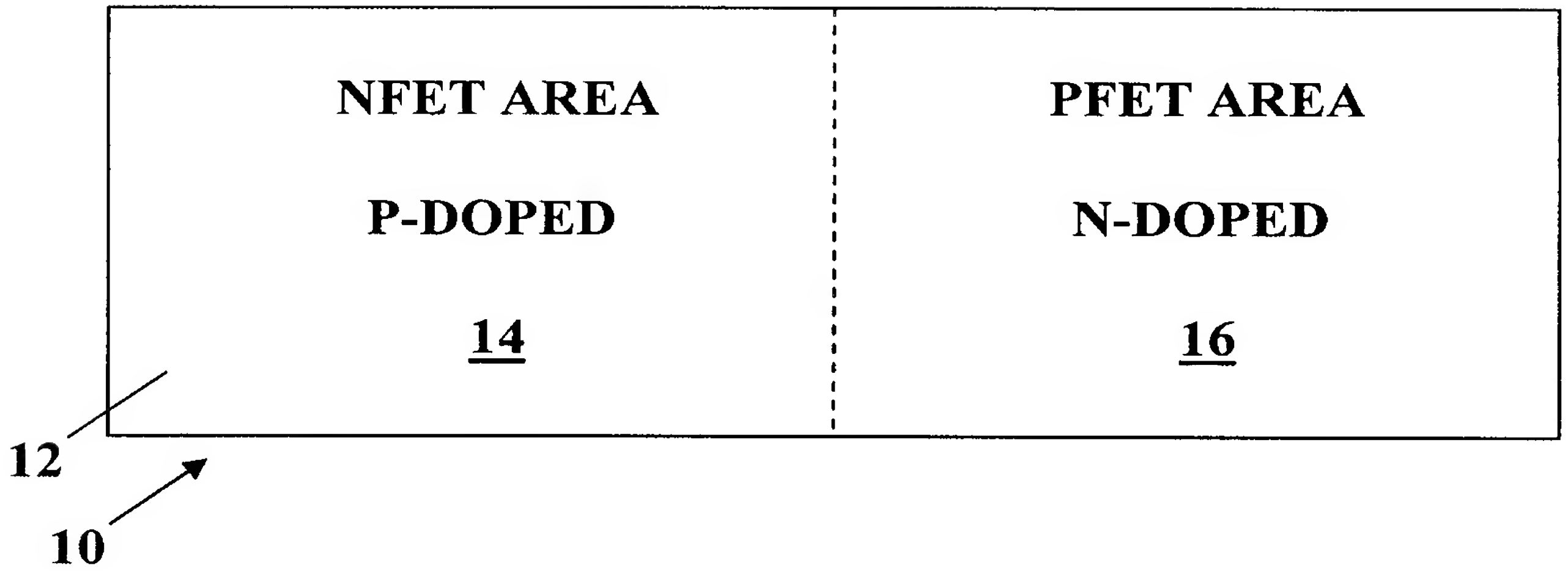
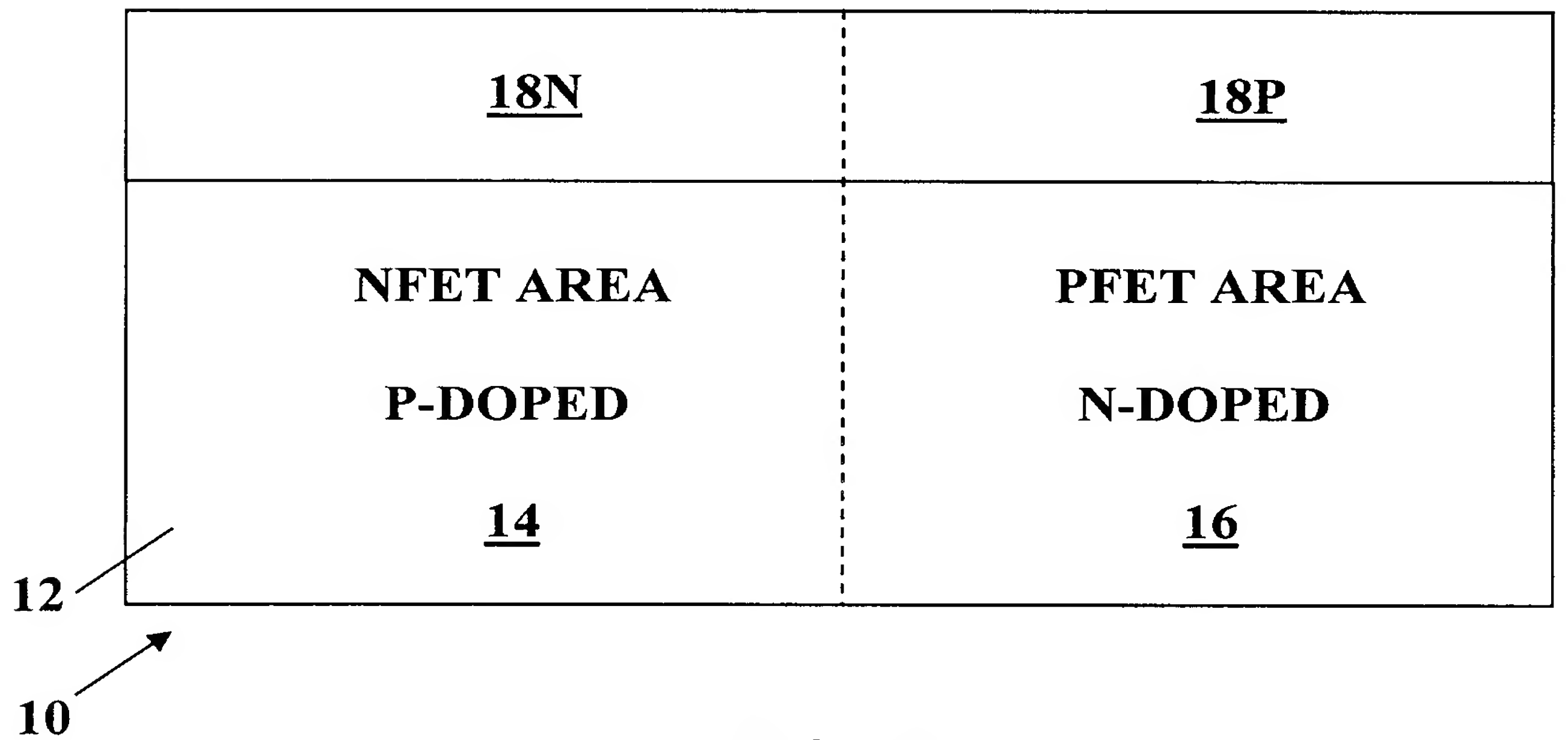
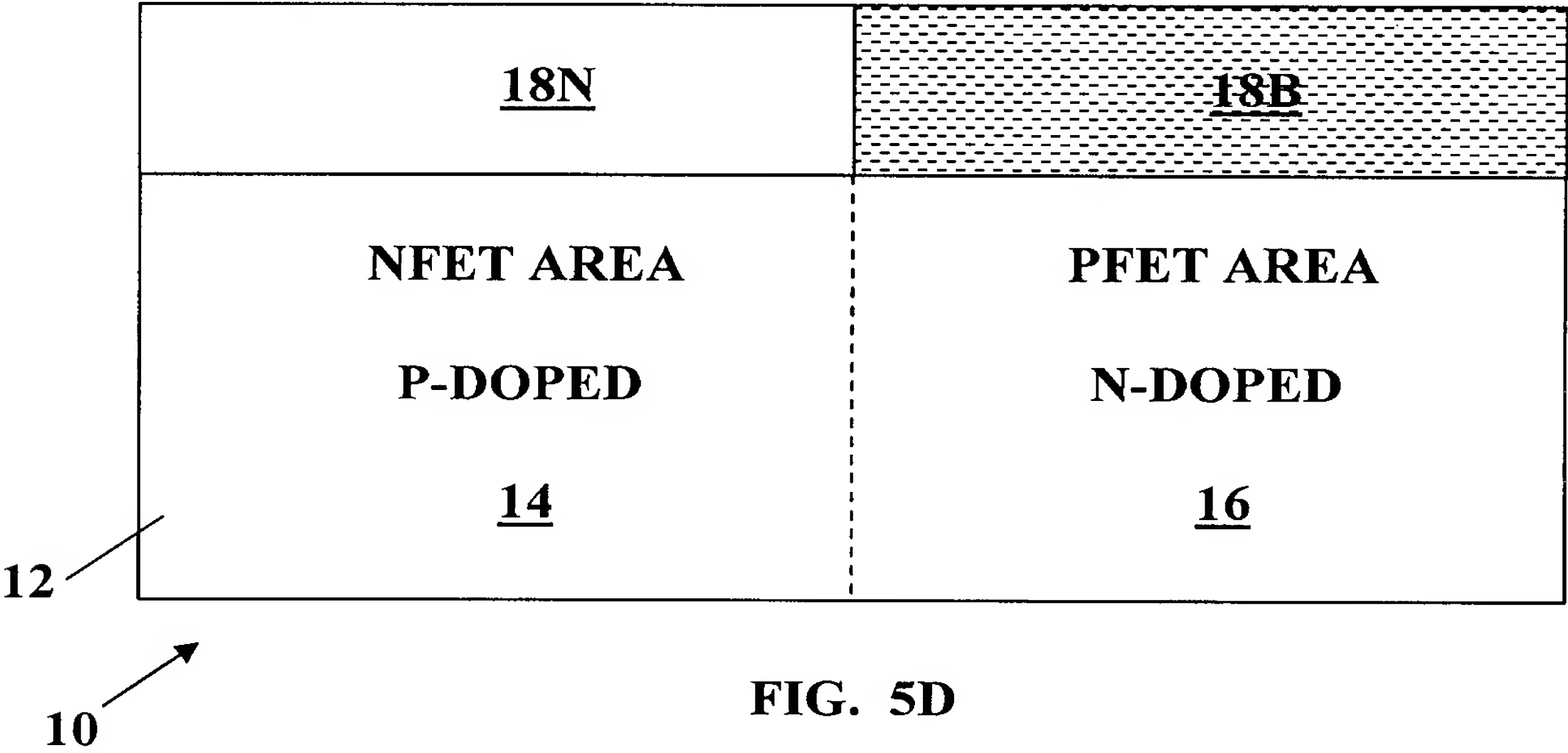
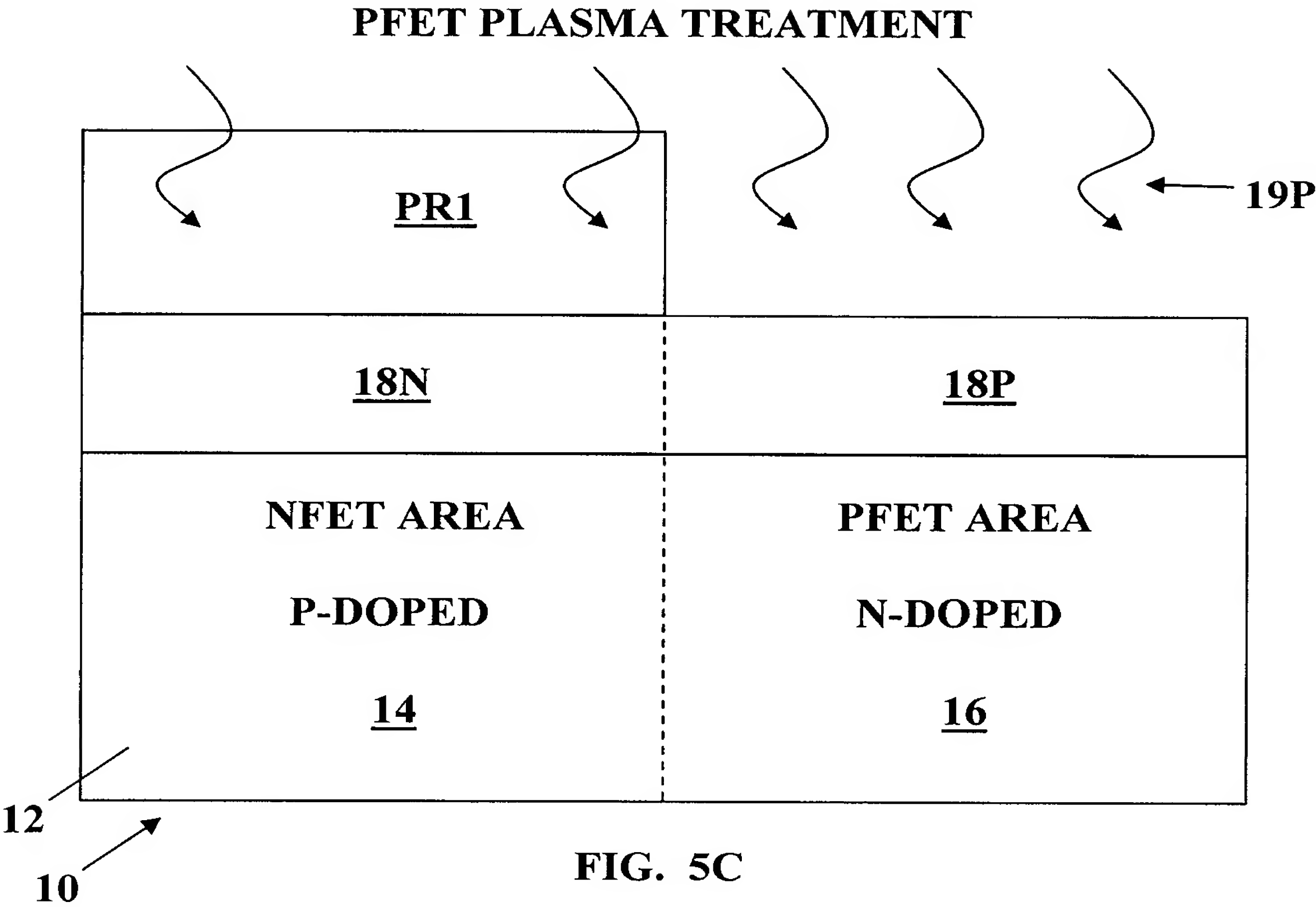


FIG. 4B PRIOR ART



**FIG. 5A****FIG. 5B**



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NFET PLASMA TREATMENT

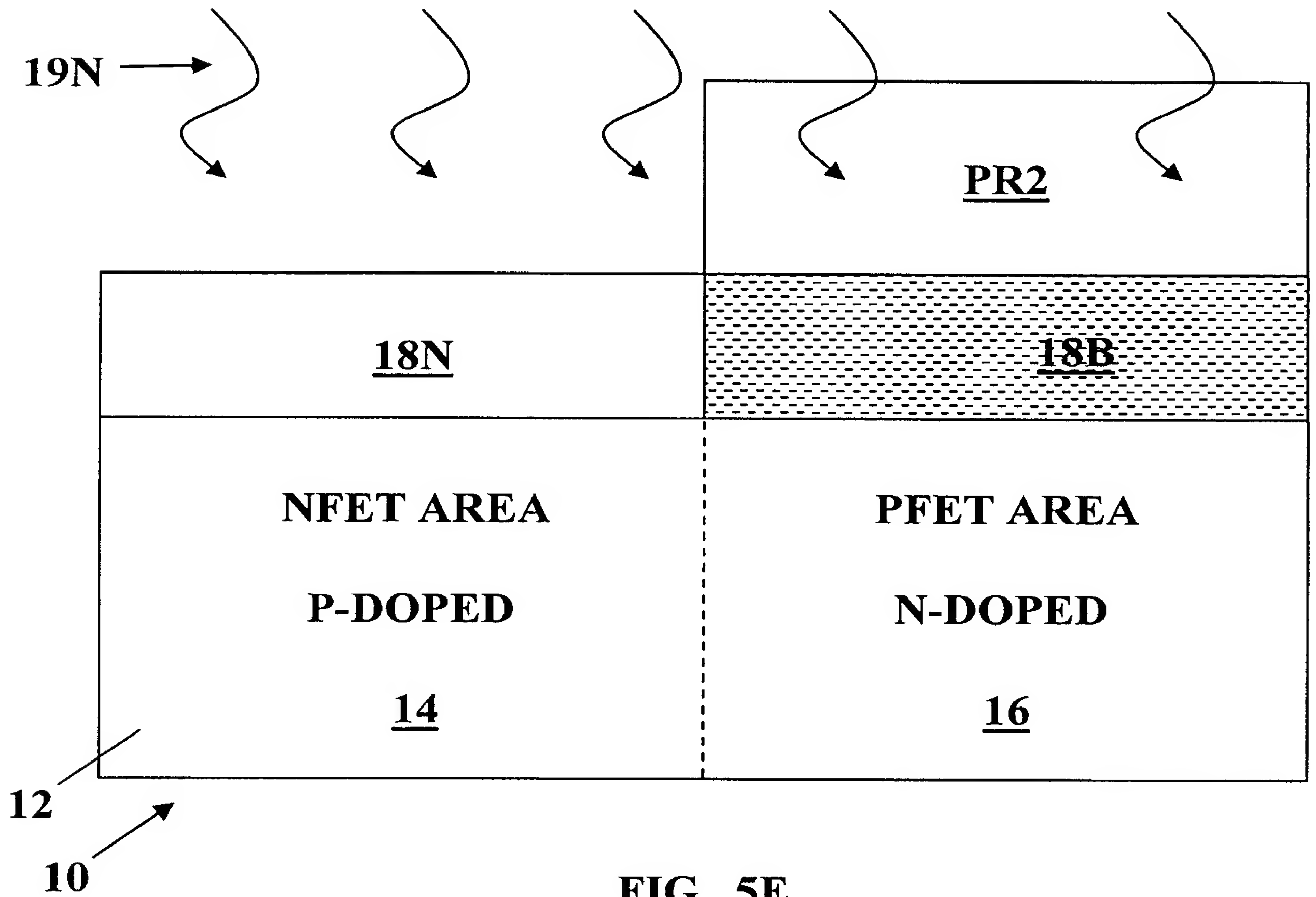


FIG. 5E

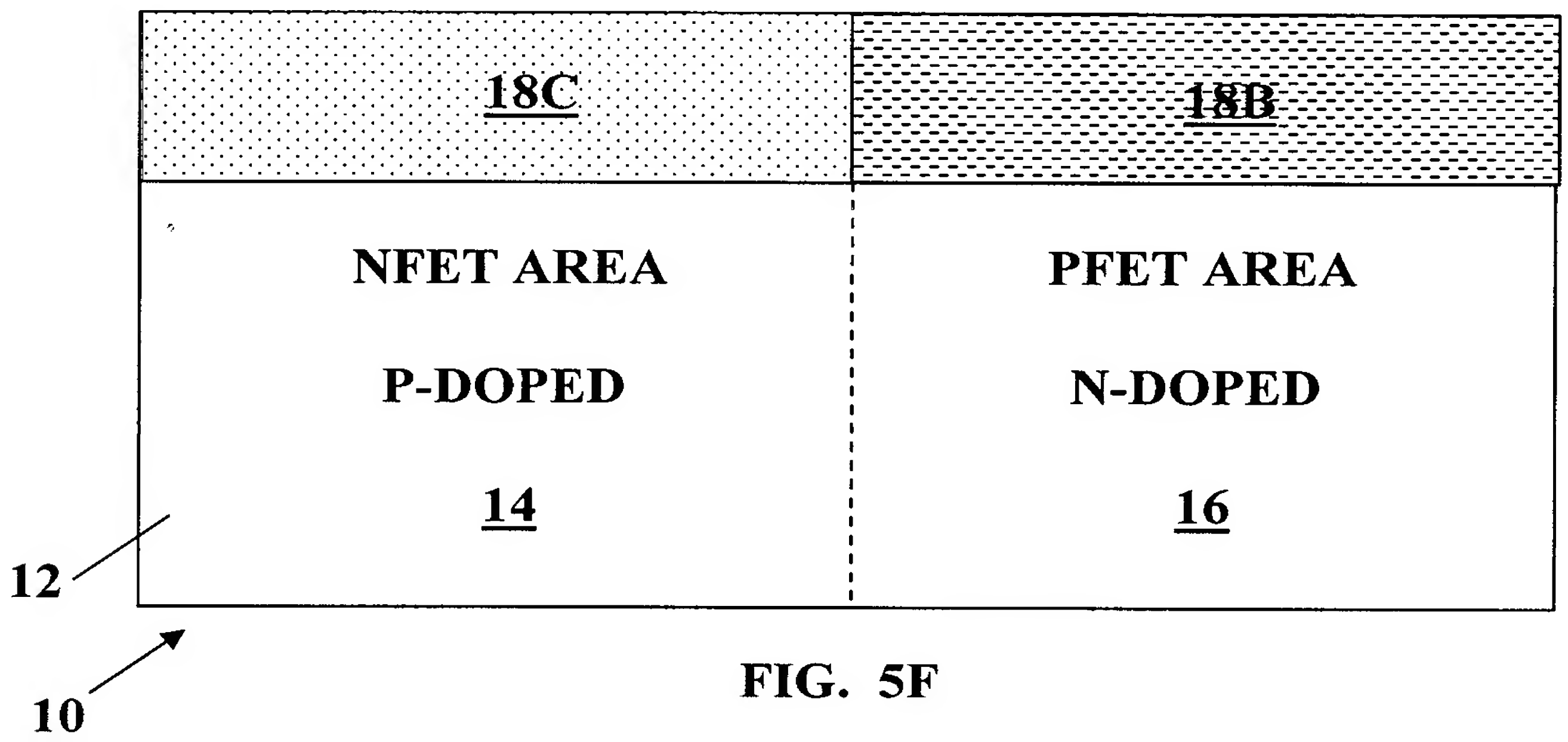
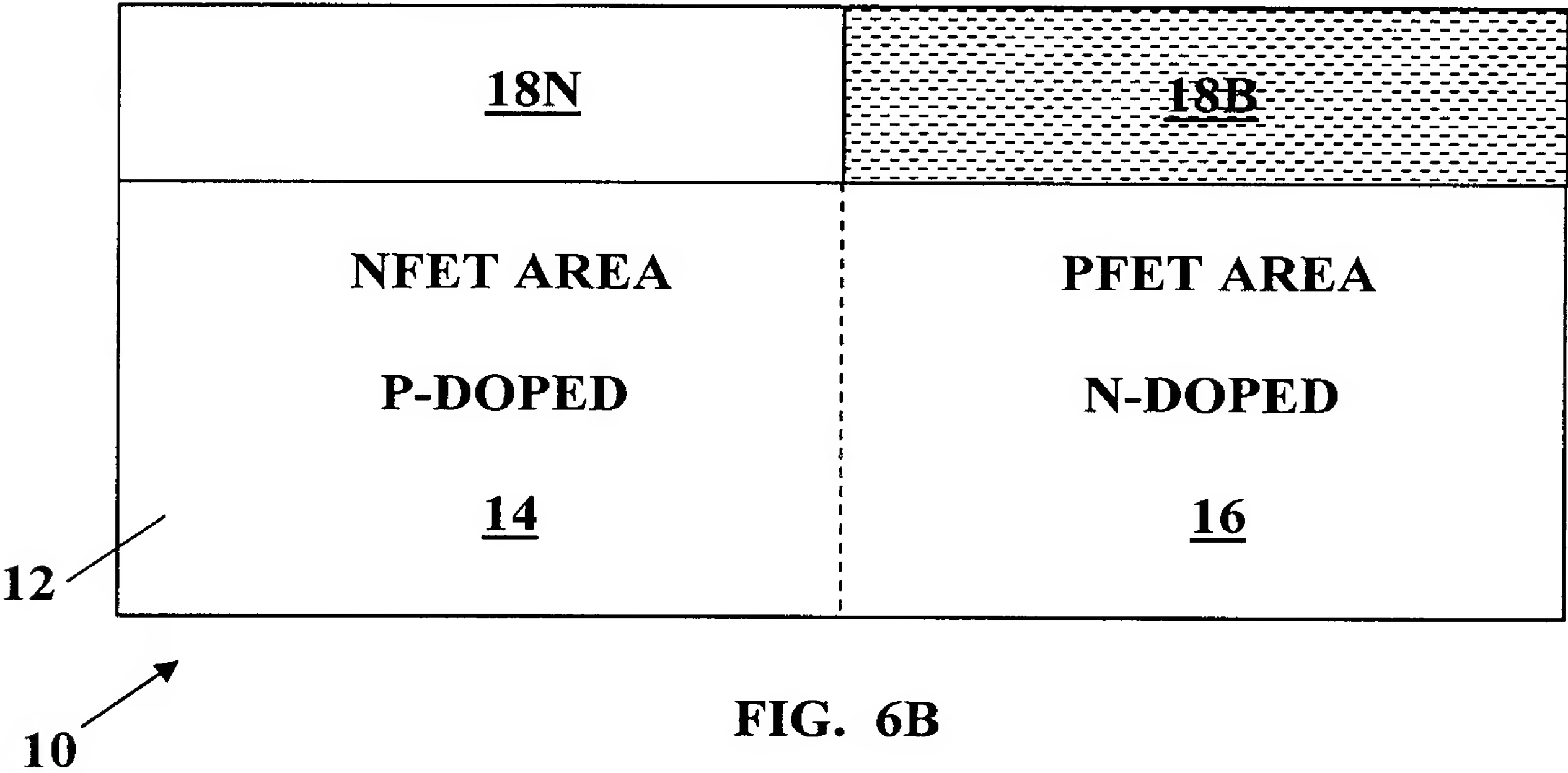
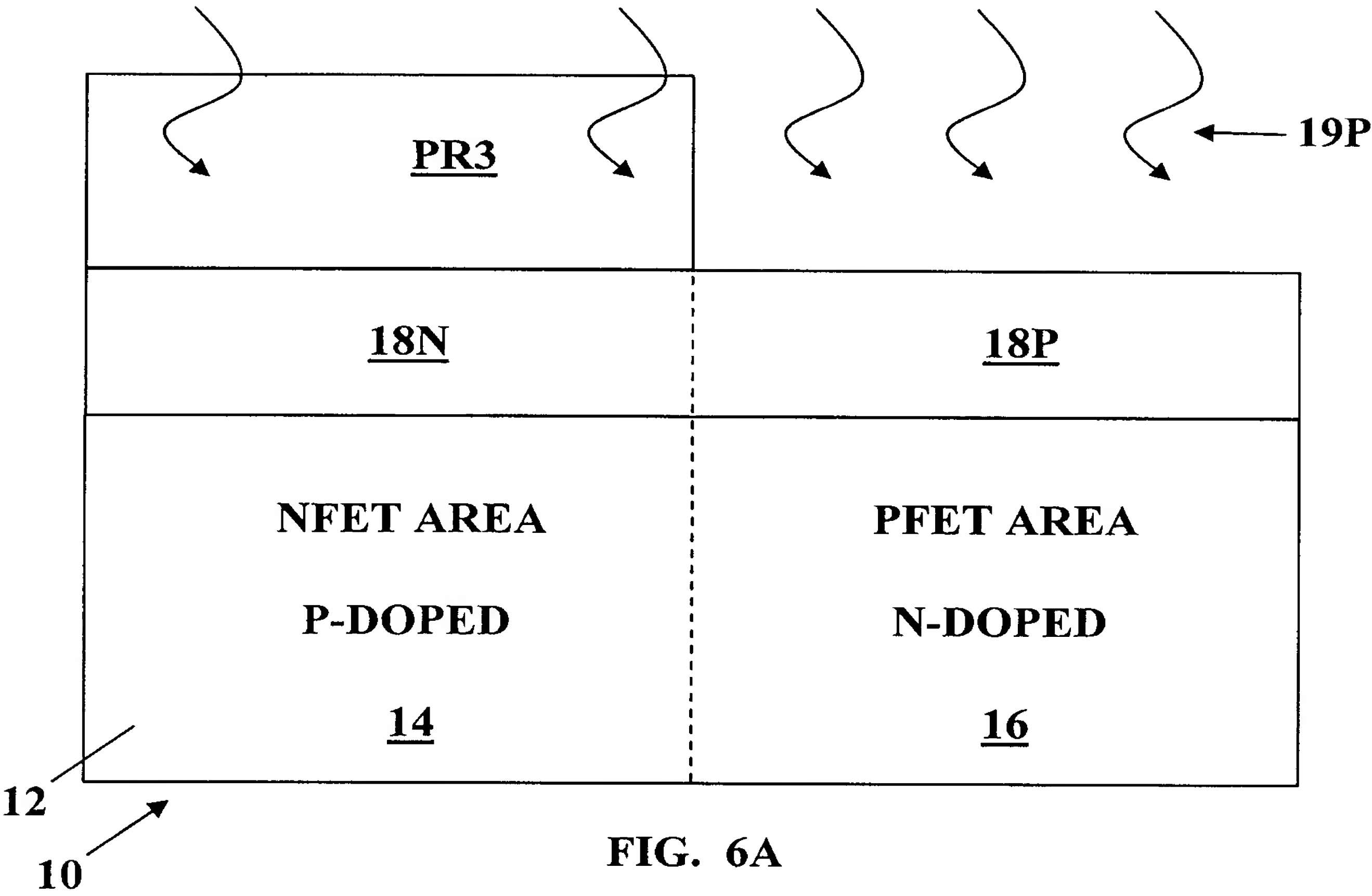
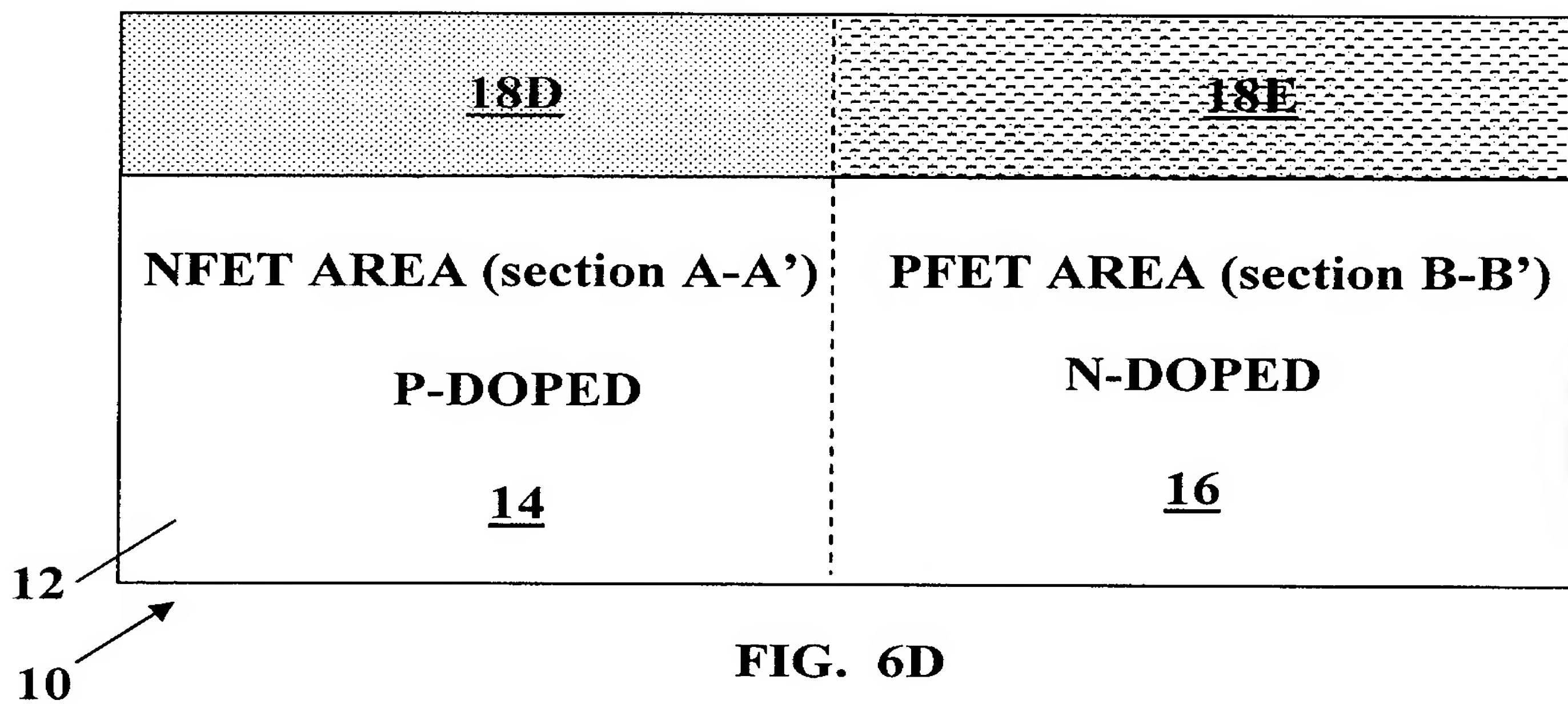
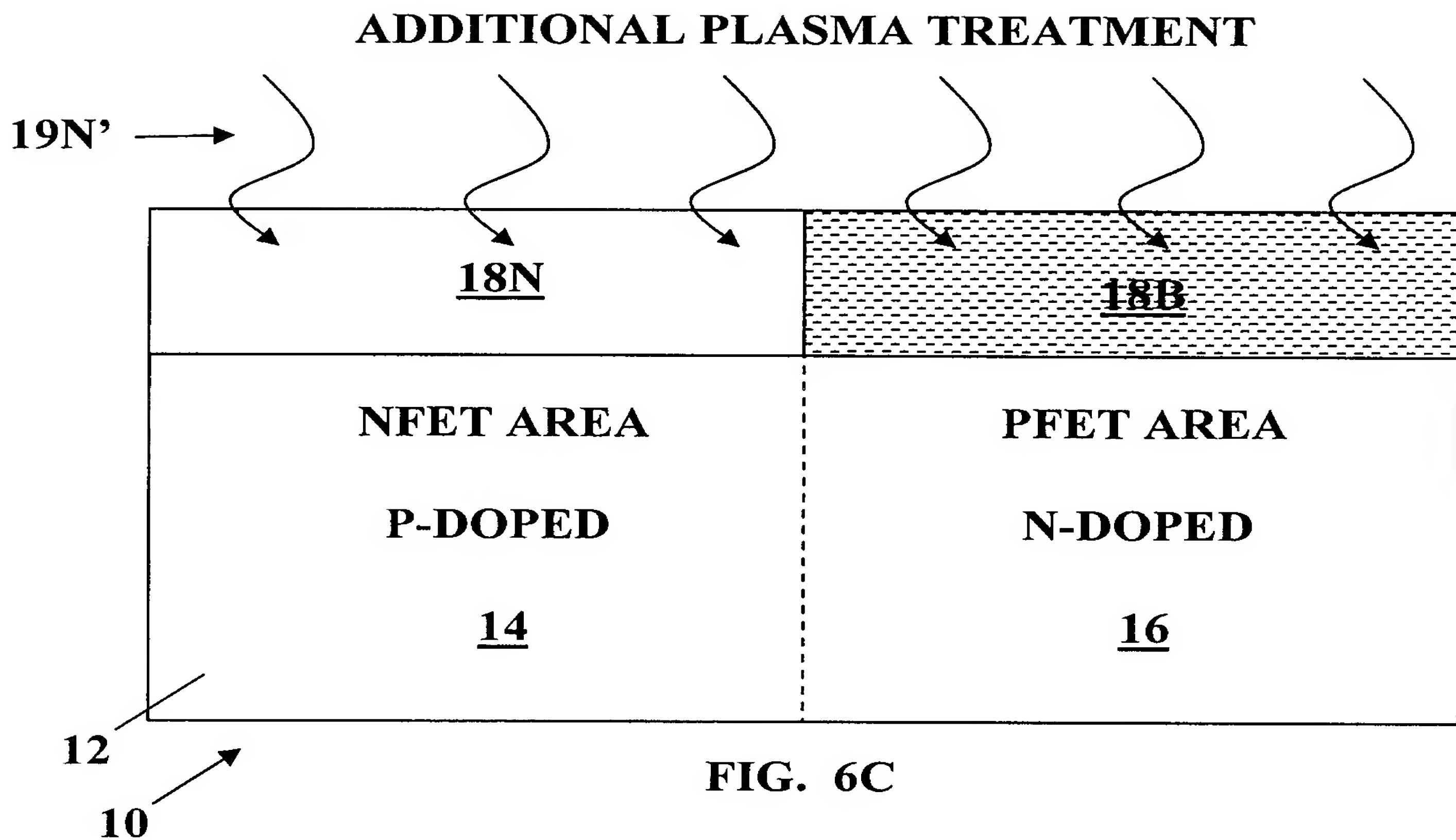


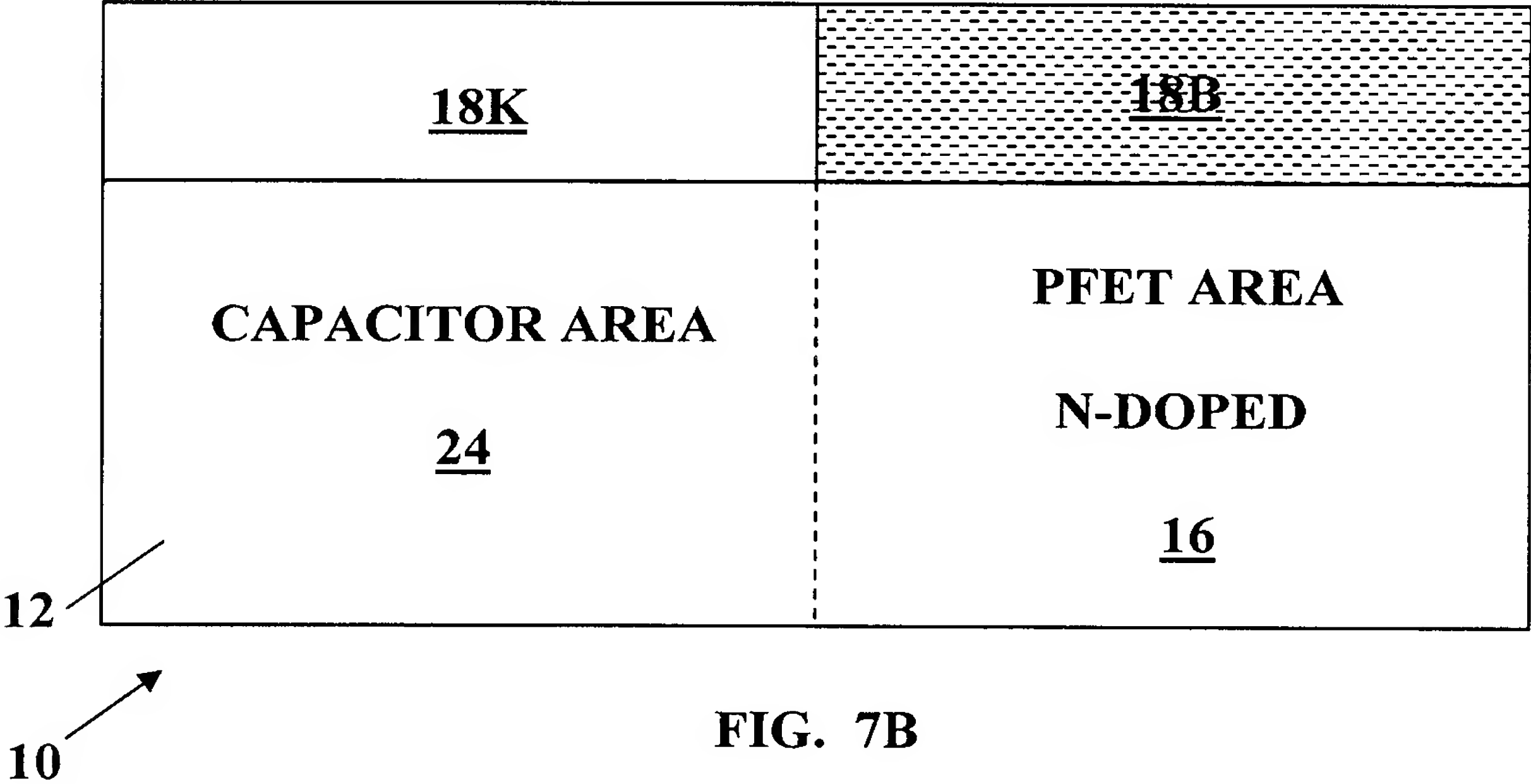
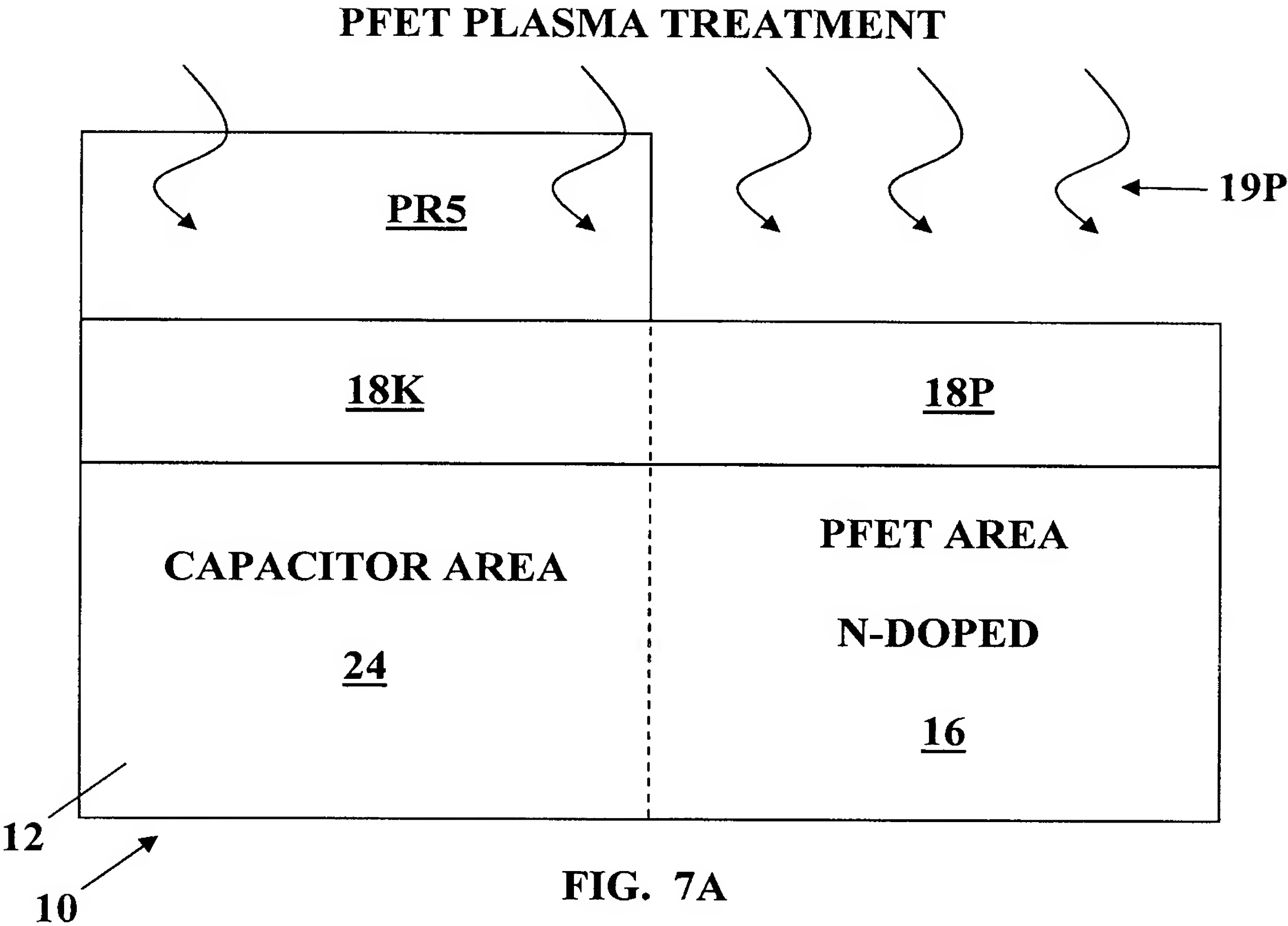
FIG. 5F

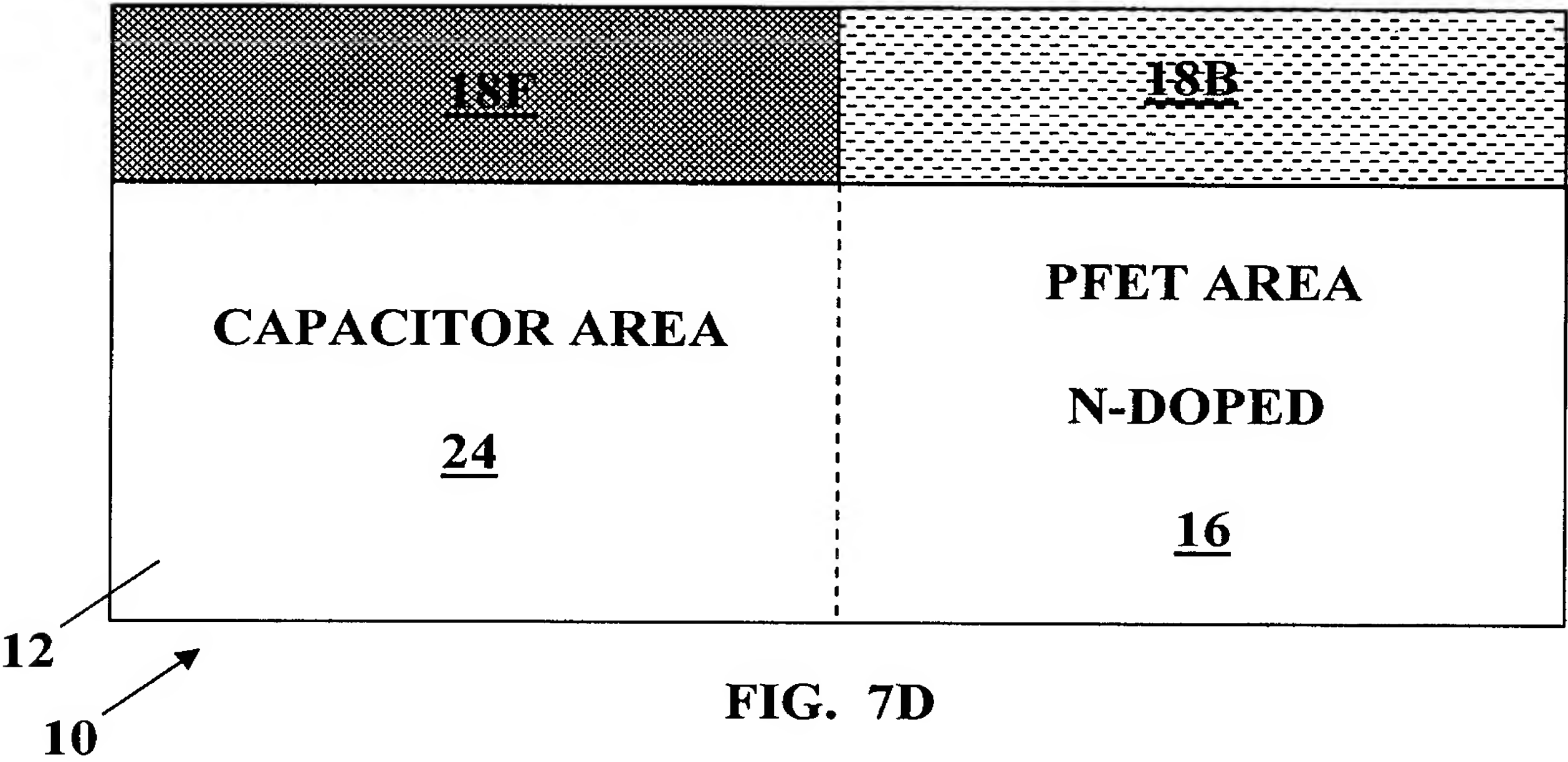
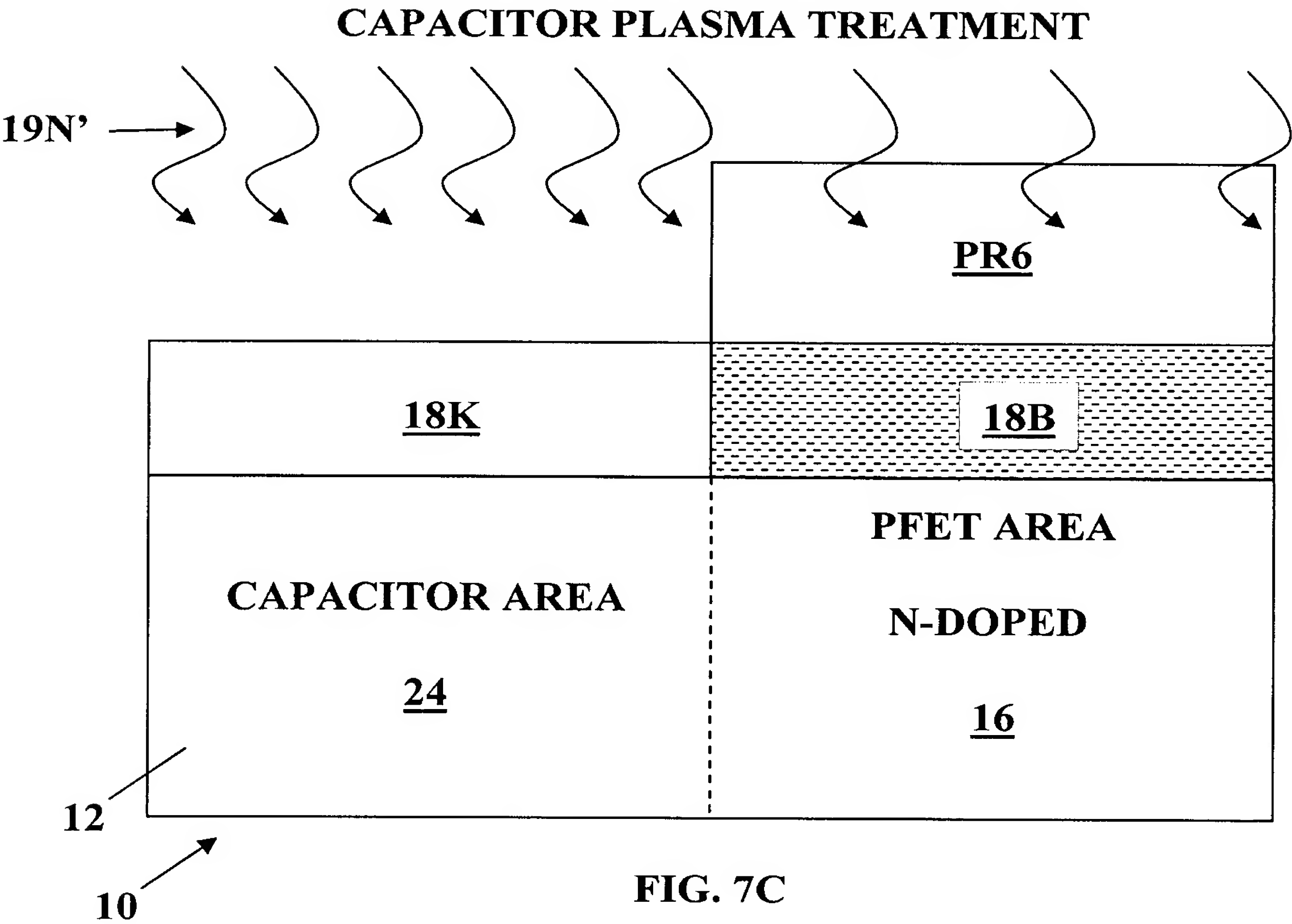
PFET PLASMA TREATMENT

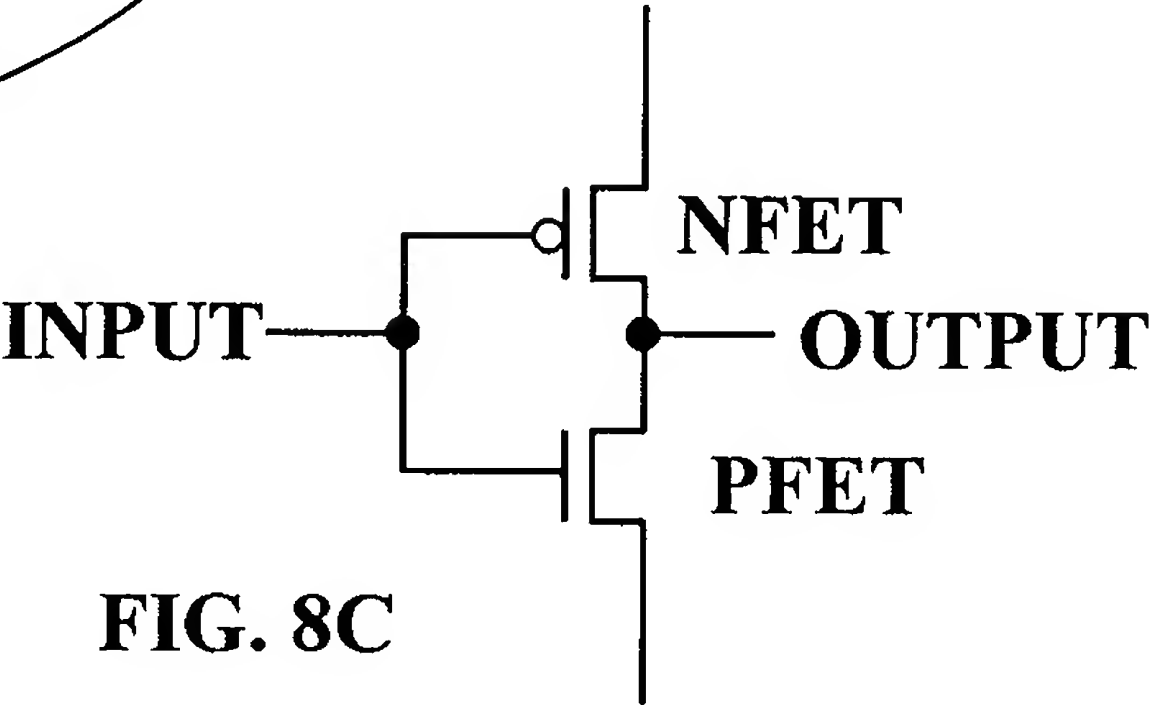
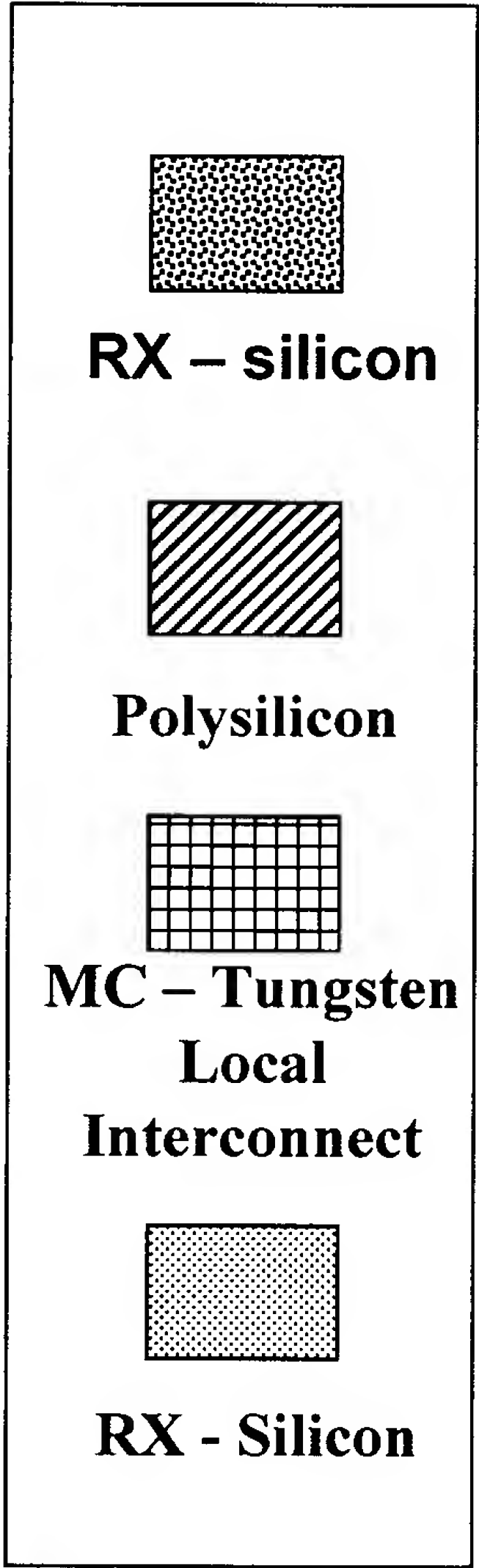
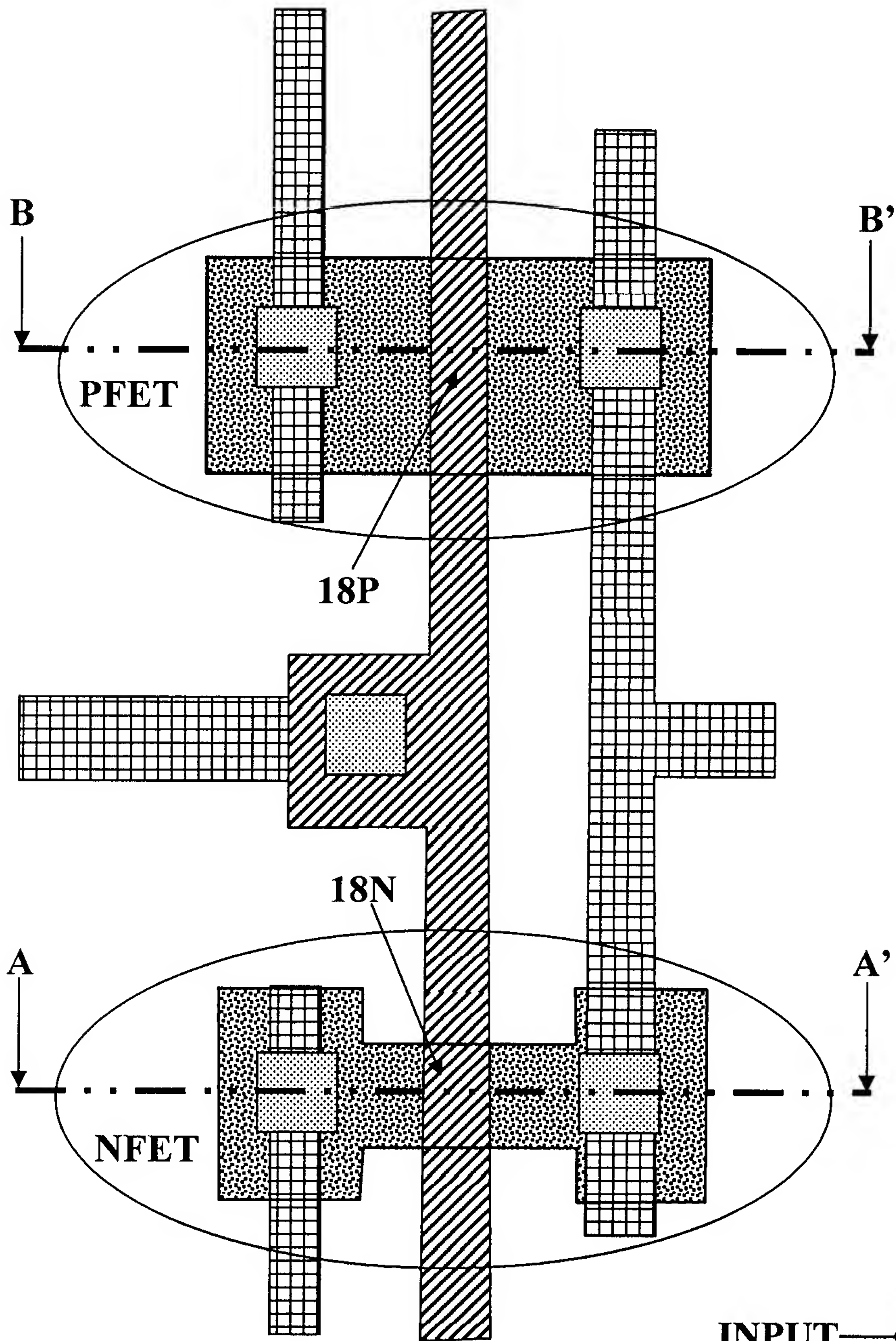


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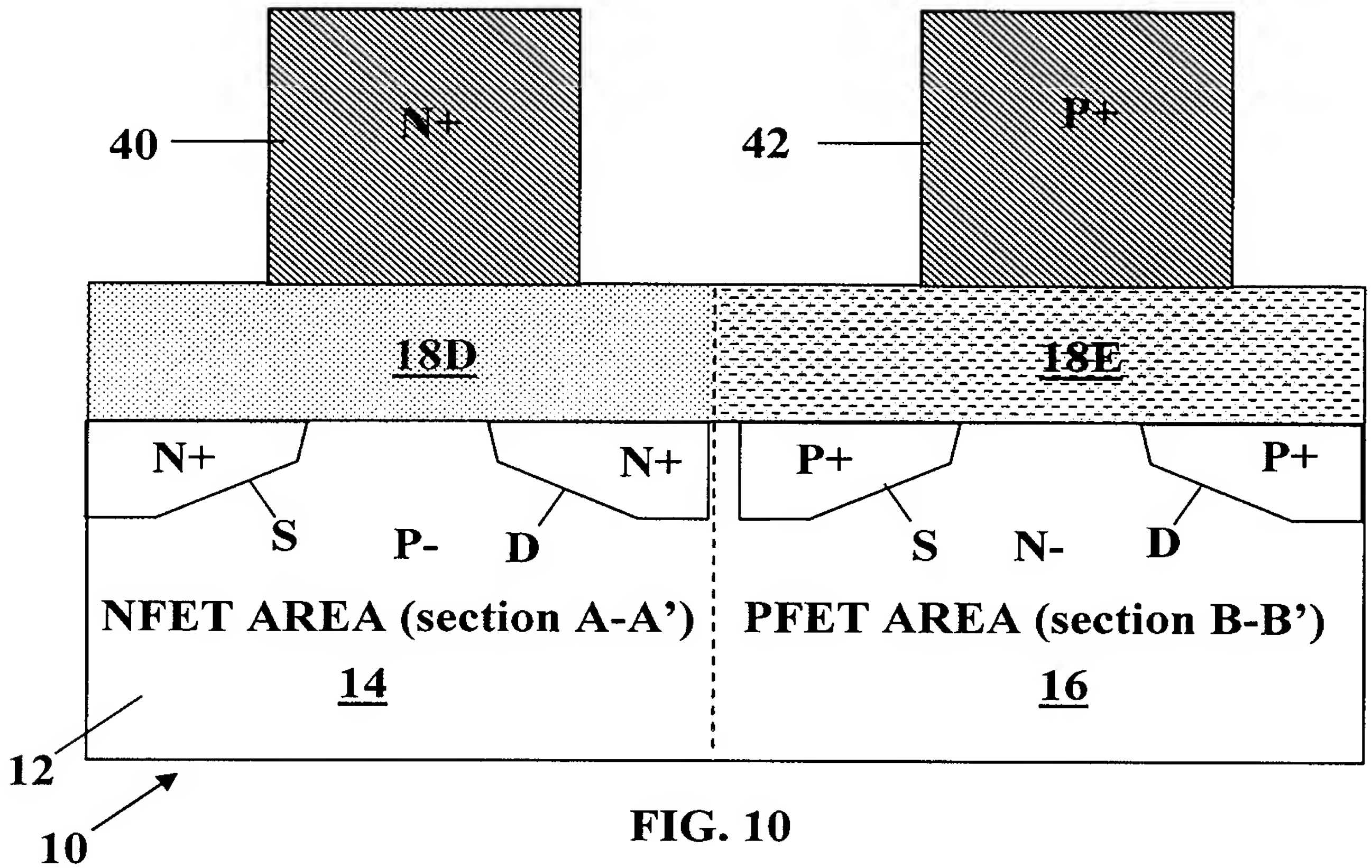
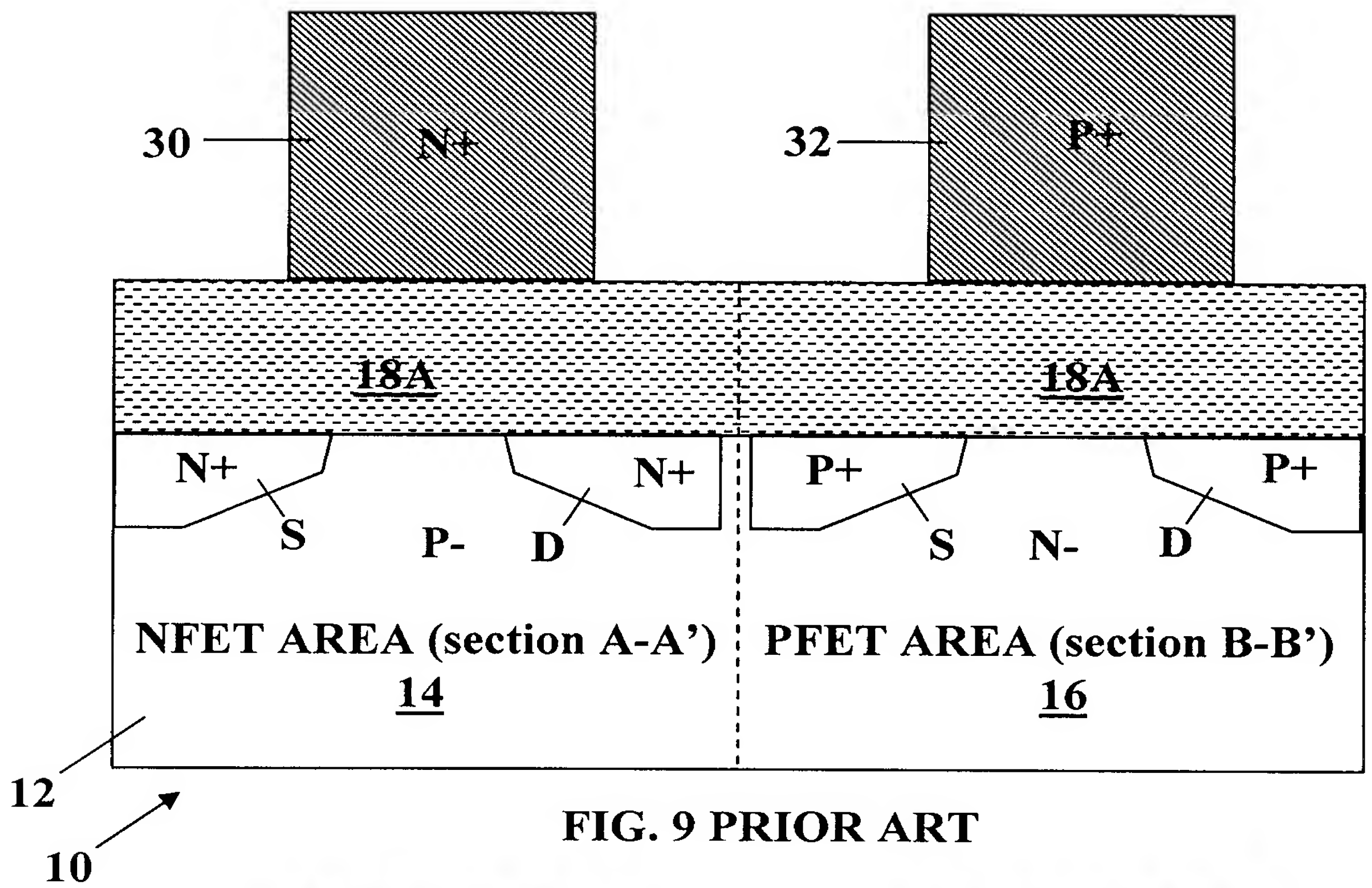








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	NITROGEN CONCENTRATION		GATE LEAKAGE		MOBILITY		PERFORMANCE
	PFET oxynitride Nitrogen dose (cm ⁻²)	NFET oxynitride Nitrogen dose (cm ⁻²)	PFET gate leakage	NFET gate leakage	PFET mobility	NFET mobility	
A	0E15	0E15	-	-	0	0	0
B	1E15	1E15	0	0	0	0	0
C	2E15	2E15	+	+	+	-	0
D	2E15	1E15	+	0	+	0	+

Key: - = poor; 0 = acceptable; + = improved;

FIG. 11